#### 4.3.4.2.3 *Air Quality and Noise*

Construction and operation of the ceramic immobilization facility would generate criteria and toxic/hazardous pollutants. To evaluate the air quality impacts, criteria and toxic/hazardous concentrations from this facility have been compared with Federal and State standards and guidelines for each site. Impacts for radiological airborne emissions are discussed in Section 4.3.4.2.9.

Noise impacts during either construction or operation are expected to be low. Air quality and noise impacts are described separately. Supporting data for the air quality and noise analysis are presented in Appendix F.

**AIR QUALITY**

Construction and operation of the facility would result in the emission of some pollutants at each of the sites. Emissions would typically not exceed Federal, State, or local air quality regulations or guidelines.

The principal sources of emissions during construction include the following:

- Fugitive dust from land clearing, site preparation, excavation, wind erosion of exposed ground surfaces, and possible operation of a concrete batch plant
- Exhaust and road dust generated by construction equipment, vehicles delivering construction materials, and vehicles carrying construction workers

The $PM_{10}$ and TSP concentrations are expected to increase during the peak construction period. Appropriate control measures would be followed. It is expected that the sites will continue to comply with applicable Federal and State ambient air quality standards during construction. Construction impacts would be lower if existing facilities were used.

Emission rates for operation of the ceramic immobilization facility are presented in Table F.1.3–10. Air pollutant emissions sources associated with operations include the following:

- Increased operation of existing boilers for space heating
- Operation of diesel generators and periodic testing of emergency diesel generators
- [Text deleted.]

The PSD regulations, which are designed to protect ambient air quality in attainment areas, apply to new sources and major modifications to existing sources. Based on the emission rates presented in Appendix F, PSD permits may be required for this alternative at any of the sites. This may require "offsets," reductions of existing emissions, to permit any additional or new emission source.

During operation, concentrations of criteria and toxic/hazardous air pollutants are predicted to be in compliance with Federal, State, and local air quality regulations or guidelines. The estimated pollutant concentrations for facility operation, plus the No Action concentrations, are presented in Table 4.3.4.2.3–1. VOCs are the only toxic/hazardous emissions and were not modeled for this PEIS.

**NOISE**

The location of the facilities associated with the ceramic immobilization facility relative to the site boundary and sensitive receptors was examined for each site to evaluate the potential contribution to noise levels at these locations and the potential for onsite and offsite noise impacts. Noise sources during construction may include

*Table 4.3.4.2.3–1. Estimated Operational Concentrations of Pollutants and Comparison With Most Stringent Regulations or Guidelines—Ceramic Immobilization Alternative and No Action Alternative*

| Pollutant | Averaging Time | Most Stringent Regulations or Guidelines[a] ($\mu g/m^3$) | Hanford | | NTS | | INEL | | Pantex | | ORR | | SRS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | No Action ($\mu g/m^3$) | Total ($\mu g/m^3$) | No Action ($\mu g/m^3$) | Total ($\mu g/m^3$) | No Action ($\mu g/m^3$) | Total ($\mu g/m^3$) | No Action ($\mu g/m^3$) | Total ($\mu g/m^3$) | No Action ($\mu g/m^3$) | Total ($\mu g/m^3$) | No Action ($\mu g/m^3$) | Total ($\mu g/m^3$) |
| **Criteria Pollutant** | | | | | | | | | | | | | | |
| Carbon monoxide | 8-hour | 10,000 | 0.08 | 39.68 | 2,290 | 2,321.46 | 284 | 383.5 | 602 | 984.8 | 5 | 14.81 | 22 | 360.7 |
| | 1-hour | 40,000 | 0.3 | 314.95 | 2,748 | 2,970.3 | 614 | 865.9 | 2,900 | 4,897 | 11 | 31.31 | 171 | 1,765 |
| Lead | Calendar Quarter | 1.5 | <0.01 | <0.01 | [b] | [b] | 0.001 | 0.001 | 0.09 | 0.09 | 0.05 | 0.05 | <0.01 | <0.01 |
| | 24-hour | 0.5 | <0.01 | <0.01 | [c] | [c] | [c] | [c] | [c] | [c] | [c] | [c] | [c] | [c] |
| Nitrogen dioxide | Annual | 100 | 0.03 | 3.75 | [b] | 0.56[d] | 4 | 9.08 | 2.15 | 22.95 | 3 | 3.84 | 5.7 | 21.91 |
| Ozone[c] | 1-hour | 235 | [e] | [e] | [e] | [e] | [e] | [e] | [e] | [e] | [e] | [e] | [e] | [e] |
| Particulate matter less than or equal to 10 microns in diameter | Annual | 50 | <0.01 | <0.01 | 9.4 | 9.4 | 5 | 5.01 | 8.73 | 8.75 | 1 | 1 | 3 | 3.02 |
| | 24-hour | 150 | 0.02 | 0.06 | 106 | 106 | 80 | 80.11 | 88.5 | 88.91 | 2 | 2.01 | 50.6 | 50.97 |
| Sulfur dioxide | Annual | 52 | <0.01 | <0.01 | 8.4 | 8.4 | 6 | 6 | <0.01 | <0.01 | 2 | 2 | 14.5 | 14.5 |
| | 24-hour | 260 | <0.01 | <0.01 | 94.6 | 94.6 | 135 | 135 | <0.01 | 0.05 | 32 | 32 | 196 | 196.03 |
| | 3-hour | 1,300 | 0.01 | 0.04 | 725 | 725 | 579 | 579 | <0.01 | 0.21 | 80 | 80 | 823 | 823.21 |
| | 1-hour[f] | 1,018 | 0.02 | 0.11 | [c] | [c] | [c] | [c] | [c] | [c] | [c] | [c] | [c] | [c] |
| | 1-hour | 655[f] | 0.02 | 0.11 | [c] | [c] | [c] | [c] | [c] | [c] | [c] | [c] | [c] | [c] |
| | 30-minute | 1,045 | [c] | [c] | [c] | [c] | [c] | [c] | <0.01 | 0.54 | [c] | [c] | [c] | [c] |
| **Mandated by State** | | | | | | | | | | | | | | |
| Gaseous fluoride (as HF) | 30-day | 0.8 | [b] | [b] | [c] | [c] | [c] | [c] | <0.75 | <0.75 | 0.2 | 0.2 | 0.09 | 0.09 |
| | 7-day | 1.6 | [b] | [b] | [c] | [c] | [c] | [c] | <0.75 | <0.75 | 0.3 | 0.3 | 0.39 | 0.39 |
| | 24-hour | 2.9 | [b] | [b] | [c] | [c] | [c] | [c] | 0.75 | 0.75 | 0.6[g] | 0.6[g] | 1.04 | 1.04 |
| | 12-hour | 3.7 | [b] | [b] | [c] | [c] | [c] | [c] | 1.05 | 1.05 | 0.6[g] | 0.6[g] | 1.99 | 1.99 |
| | 8-hour | 250 | [c] | [c] | [c] | [c] | [c] | [c] | [c] | [c] | 0.6 | 0.6 | [c] | [c] |
| | 3-hour | 4.9 | [c] | [c] | [c] | [c] | [c] | [c] | 4.21 | 4.21 | [c] | [c] | [c] | [c] |

*Table 4.3.4.2.3–1. Estimated Operational Concentrations of Pollutants and Comparison With Most Stringent Regulations or Guidelines—Ceramic Immobilization Alternative and No Action Alternative—Continued*

| Pollutant | Averaging Time | Most Stringent Regulations or Guidelines[a] ($\mu g/m^3$) | Hanford | | NTS | | INEL | | Pantex | | ORR | | SRS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | No Action ($\mu g/m^3$) | Total ($\mu g/m^3$) | No Action ($\mu g/m^3$) | Total ($\mu g/m^3$) | No Action ($\mu g/m^3$) | Total ($\mu g/m^3$) | No Action ($\mu g/m^3$) | Total ($\mu g/m^3$) | No Action ($\mu g/m^3$) | Total ($\mu g/m^3$) | No Action ($\mu g/m^3$) | Total ($\mu g/m^3$) |
| Hydrogen sulfide | 1-hour | 112 | c | c | b | b | c | c | c | c | c | c | c | c |
| | 30-minute | 111 | c | c | c | c | c | c | b | b | c | c | c | c |
| Total suspended particulates | Annual | 60 | <0.01 | <0.01 | c | c | 5 | 5.01 | c | c | c | c | 12.6 | 12.62 |
| | 24-hour | 150 | 0.02 | 0.06 | c | c | 80 | 80.11 | c | c | 2 | 2.01 | c | c |
| | 3-hour | 200 | c | c | c | c | c | c | b | 2.29[d] | c | c | c | c |
| | 1-hour | 400 | c | c | c | c | c | c | b | 6.15[d] | c | c | c | c |
| [Text deleted.] | | | | | | | | | | | | | | |

[a] The more stringent of the Federal and State standards is presented for the averaging time.

[Text deleted.]

[b] No sources of this pollutant have been identified.

[c] No State standard for indicated averaging time.

[d] The concentration represents the alternative contribution only.

[e] Ozone, as a criteria pollutant, is not directly emitted or monitored by the sites. See Section 4.1.3 for a discussion of ozone-related issues.

[f] At Hanford, the level is not to be exceeded more than twice in any 7 consecutive days.

[g] 8-hour averaging time concentration was used.

Note: Total concentrations are based on site contribution, including contribution from ongoing activities (No Action), and do not include the contribution from non-facility sources. Concentrations from other hazardous/toxic pollutants reported for No Action in Section 4.2 are unchanged for this alternative and are not shown here.

Source: 40 CFR 50; ID DHW 1995a; ID DHW 1995b; LLNL 1996d; NV DCNR 1995a; SC DHEC 1991a; SC DHEC 1992b; TN DEC 1994a; TN DHE 1991a; TX ACB 1987a; TX NRCC 1992a; TX NRCC 1995a; WA Ecology 1994a.

heavy-construction equipment and increased traffic would occur onsite and along offsite major transportation routes used to bring construction material and workers to the site.

Nontraffic noise sources associated with operation of these facilities include ventilation systems, cooling systems, and emergency diesel generators. These noise sources would be located at sufficient distance from offsite areas so that the contribution to offsite noise levels would continue to be small. Due to the size of the sites, noise emissions from construction equipment and operations activities would not be expected to cause annoyance to the public. Some noise sources may result in impacts such as disturbance of wildlife.